

Appl. No.: 10/799,131  
Amct. Dated: 8/16/2005

IB-1825

**Amendments to the Abstract:**

The abstract has been amended to shorten it to a length of 150 words or less. The amended abstract below replaces the original abstract in its entirety, with deletions shown. No new matter has been added.

**ABSTRACT OF THE DISCLOSURE**

~~A rigorous full waveform inversion of seismic data is presented that does not require any source information, therefore, eliminating potential errors involved in the physical and mathematical approximation of source input functions and their coupling to unrepeatable geological sites.~~ A set of seismic trace data is collected in ~~[[a ]]~~an input data set that is first Fourier transformed in its entirety into the frequency domain. A normalized wavefield is obtained for each trace of the input data set in the frequency domain. Normalization is done with respect to the frequency response of a reference trace selected from the set of seismic trace data. The normalized wavefield is source independent, ~~complex~~ complex, and dimensionless. The normalized wavefield is shown to be uniquely defined as the normalized impulse response, provided that a certain condition is met for the source. This property allows construction of the inversion algorithm disclosed herein, without any source or source coupling information. The algorithm minimizes the error between data normalized wavefield and the model normalized wavefield. The methodology is applicable to any 3-D seismic problem, and damping may be easily included in the process. ~~A proof of principle of the invention is demonstrated using a simple 2-D scalar problem.~~

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**Remarks and arguments:**

Claims 2 and 3 have been rewritten to a style finding preference in the USPTO. Neither amendment is the result of any arguments by the Examiner regarding anticipation or obviousness with regard to any prior art. No new matter has been added.

The abstract has been amended to shorten it to a length of 150 words or less. The present count of final words to be printed is 145. No new matter has been added.

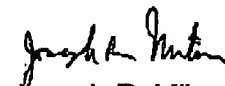
**Conclusions:**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Additionally, the abstract is believed also to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding procedural issues addressed above, and to pass this application to issue.

In the prior telephone conversation between the Examiner and Applicant dated today, the Examiner stated that he would incorporate in his allowance a report of the telephonic interview of today.

Date: August 16, 2005

Respectfully submitted,



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